Comparisons of Job Characteristics

Focus Occupation: Computer Software Engineers, Applications (15-1031)
Associated Occupation: Computer and Information Scientists, Research (15-1011)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge — Similarity of Focus Occupation to Associated Occupation: 91

Focus Occupation: Computer Software Engineers, Applications (15-1031)
Associated Occupation: Computer and Information Scientists, Research (15-1011)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Computers and Electronics	8.4	22.8	23.8	0	Current knowledge level may be sufficient
Mathematics	9.2	18.3	15.4	<	Expanded education and/or training may be required
Education and Training	9.2	16.8	7.1	<<	Extensive education and/or training may be required
English Language	11.2	16.6	12.0	<<	Extensive education and/or training may be required
Engineering and Technology	5.7	12.0	10.1	<	Expanded education and/or training may be required
Telecommunications	3.9	11.9	4.2	<<	Extensive education and/or training may be required
Design	5.2	11.4	6.6	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills — Similarity of Focus Occupation to Associated Occupation: 76

Focus Occupation: Computer Software Engineers, Applications (15-1031)
Associated Occupation: Computer and Information Scientists, Research (15-1011)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Systems Evaluation	6.4	14.7	13.4	0	Current skill level may be sufficient
Systems Analysis	6.5	13.6	13.3	0	Current skill level may be sufficient
Programming	2.2	12.4	14.6	>	Skill level is likely sufficient
Time Management	8.9	12.2	10.1	<	A higher skill level may be required
Mathematics	6.2	11.3	12.0	0	Current skill level may be sufficient

Operations Analysis	5.0	10.6	11.4	0	Current skill level may be sufficient
Technology Design	2.6	10.0	10.3	0	Current skill level may be sufficient
Management of Financial Resources	3.3	7.8	5.2	<<	Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities — Similarity of Focus Occupation to Associated Occupation: 99

Focus Occupation: Computer Software Engineers, Applications (15-1031)
Associated Occupation: Computer and Information Scientists, Research (15-1011)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Deductive Reasoning	10.6	14.6	13.6	0	Current ability level may be sufficient
Inductive Reasoning	10.2	14.1	12.3	<	Some improvement in abilities may be required
Problem Sensitivity	11.1	13.9	13.0	0	Current ability level may be sufficient
Fluency of Ideas	7.6	12.8	11.9	0	Current ability level may be sufficient
Information Ordering	9.9	12.6	11.6	0	Current ability level may be sufficient
Category Flexibility	9.0	12.4	11.1	<	Some improvement in abilities may be required
Originality	7.6	11.0	10.8	0	Current ability level may be sufficient
Mathematical Reasoning	6.3	10.8	12.4	>	Current ability level is likely sufficient
Number Facility	6.3	9.8	11.2	>	Current ability level is likely sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common — Similarity of Focus Occupation to Associated Occupation: 95

Focus Occupation: Computer Software Engineers, Applications (15-1031)
Associated Occupation: Computer and Information Scientists, Research (15-1011)

Work Activities	Exclusivity of Activity
Communicate technical information	4
Design computer hardware or software interface	87
Design data processing systems	92
Design data security systems	89
Design electronic equipment	74
Design hardware or software systems	92
Develop mathematical or computer languages	89
Develop mathematical simulation models	70
Develop or maintain databases	30
Develop tables depicting data	33
Follow data security procedures	77

Follow data storage procedures	75
Make presentations	13
Prepare technical reports or related documentation	22
Program computers for electronic engineering applications	87
Program computers using existing software	85
Program mainframe computer	84
Provide technical computer training	82
Resolve engineering or science problems	46
Test computer programs or systems	78
Use computer networking technology	81
Use computer programming language	82
Use computers to enter, access or retrieve data	3
Use knowledge of mainframe computers	78
Use project management techniques	47
Use scientific research methodology	21
Use spreadsheet software	18
Write computer software, programs, or code	84
Write documentation for computer programming	87

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 86

Focus Occupation: Computer Software Engineers, Applications (15-1031)
Associated Occupation: Computer and Information Scientists, Research (15-1011)

Tools and Technologies	Exclusivity
Cameras	2
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Industry specific software	1
Operating environment software	12
Removable storage media	70

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.